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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,627	03/01/2004	Brad N. Mathiowetz	P32.12-0022	1342

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EXAMINER	
CHUO, TONY SHENG HSIANG	
ART UNIT	**PAPER NUMBER**
1746	

DATE MAILED: 05/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/790,627	MATHIOWETZ ET AL.	
	Examiner	Art Unit	
	Tony Chuo	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-16 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-16 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 6-17-4-9 10-4-10-4-4-10-09-4 11-15-4-12-6-4-13-21-4-8-8-5-10-30
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 11 recites the limitation "plastic resin separation bars" in the plastic resin shell. There is insufficient antecedent basis for this limitation in the claim. Claim 11 appears to be dependent upon claim 10.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 4, 12, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Oweis et al (US 5651255). The Oweis reference teaches a cover and process of covering an electrical energy storage cell comprising: a first layer "3" of thermally conductive material made of aluminum that is shaped to conform to an outer surface of the electrical energy storage cell; and a second layer "4" of thermally insulating material that is shaped to conform to an outer surface of the first layer (See Figure 1 and column 2, lines 28-33). In addition, it also teaches the first layer of material that spreads flow of the heat over a portion of the outer surface of the first layer

that is larger than the hot spot and a second layer of material that retards the flow of heat to an outer surface of the second layer (See column 2, lines 28-33).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 2, 7, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6294287) in view of Moores et al (US 6455186). The Lee reference teaches a cover and a process of covering an electrical energy storage cell comprising: a layer "775" of thermally insulating material that is shaped to conform to an outer surface of the cell (See Figure 1 and column 6, lines 26-65). However, the reference does not expressly teach a first layer of thermally conductive material that is shaped to conform to the outer surface of the electrical energy storage cell. The Moores reference does teach a layer of thermally conductive material that is shaped to conform to the outer surface of the electrical energy storage cell (See Figure 4a and column 5, lines 44-47). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Lee battery cover to include a layer of thermally conductive material in between the cell and the thermally insulating material in order to more effectively remove heat from the cell and evenly dissipate the heat throughout the cell.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oweis et al (US 5651255) in view of Rouillard et al (US 6087036). The Oweis reference teaches a cover comprising: a first layer "3" of thermally conductive material made of aluminum that is shaped to conform to an outer surface of the electrical energy storage cell; and a second layer "4" of thermally insulating material that is shaped to conform to an outer surface of the first layer (See Figure 1 and column 2, lines 28-33). However, it does not expressly teach the temperature of the outer surface of the second layer that has a measured maximum temperature of 130 degrees centigrade or less during short circuit condition. The Rouillard reference does teach the temperature of the outer surface of the battery that has a measured maximum temperature of 130 degrees centigrade or less during short circuit condition (See column 8, line 59 to column 9, line 14). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Oweis battery cover to maintain the temperature of the outer surface of the battery that has a measured maximum temperature of 130 degrees centigrade or less during short circuit condition in order to operate the battery below the maximum breakdown temperature of the cells.

8. Claims 4, 5, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6294287) in view of Moores et al (US 6455186) as applied to claims 1, 2, 7, and 12 and further in view of Dansui et al (US 2003/0013009). However, the references do not expressly teach thermally conductive materials that comprise aluminum or copper. The Dansui reference does teach thermally conductive materials such as aluminum or copper (See paragraph [0026]). Therefore, it would

have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Lee battery cover to include a layer of thermally conductive material that is either aluminum or copper because these materials are well known in the art to exhibit excellent thermal conductivity properties.

9. Claims 6, 7, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6294287) in view of Moores et al (US 6455186) as applied to claims 1, 2, 7, and 12 for reasons stated above and further in view of Oosaki et al (US 5689173). However, the references do not expressly teach thermally insulating materials that comprise heat-shrink tubing or elastic material. The Oosaki reference does teach thermally insulating materials such as heat shrink tubing which is an elastic material (See column 4, lines 20-22). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Lee battery cover to include heat shrink tubing because heat shrink tubing is inexpensive and easy to manufacture.

10. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6294287) in view of Moores et al (US 6455186) as applied to claims 1, 2, 7, and 12 and further in view of Bechtold et al (US 6007944). However, the references do not expressly teach a cover that comprises two half-shells that each cover one side of a round surface of the energy storage cell. The Bechtold reference does teach two half shells that each cover one side of energy storage cell (See column 1, lines 37-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Lee battery cover to include two half shells that each

cover one side of a round surface of the energy storage cell in order to decrease the risk of a short circuit.

11. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al (US 5204194) in view of Oweis et al (US 5651255). The Miller reference teaches a battery comprising: a plurality of electrical energy storage cells "24'" & "26'"; electrical connection leads "32"; a protective device including a fusible link "64" and electrical interconnections "50" that interconnect the plurality of electrical energy storage cells in series circuit with the protective device and the electrical connection leads; and a plastic resin shell shaped to receive the plurality of covered cells and the protective device (See Figure 1 and 3 and column 3, lines 39-41). However, the reference does not expressly teach covering each cell with a first layer of thermally conductive material and a second layer of thermally insulating material. The Oweis reference does teach a cell cover that comprises a first layer of thermally conductive material and a second layer of thermally insulating material. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Miller battery to include covers that comprise a first layer of thermally conductive material and a second layer of thermally insulating material in order to provide a high efficiency thermal insulation structure for dissipating heat generated by the cell.

12. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al (US 5204194) in view of Oweis et al (US 5651255) as applied to claims 9 and 10 for reasons stated above. The Miller reference also teaches upper and lower insulating members "54" and "56". However, the reference does not expressly teach a plastic

resin shell that includes plastic resin separation bars positioned between the cells and the electrical interconnections to reduce shorting. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Miller battery to include separation bars in the plastic resin shell in order to simplify the overall construction of the battery.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571) 272-0717. The examiner can normally be reached on M-F, 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TC 5/10/06

MICHAEL BARR
SUPERVISORY PATENT EXAMINER